Claims

We claim:

1. A packaging device for semiconductor die, the packaging device comprising:

a substantially planar substrate having opposed major surfaces;

a conductive mounting pad located on one of the major surfaces;

a conductive connecting pad located on the other of the major surfaces; and

a conductive interconnecting element extending through the substrate and electrically interconnecting the mounting pad and the connecting pad.

2. The packaging device of claim 1, in which the substrate comprises ceramic.

3. The packaging device of claim 1, in which the substrate comprises a material selected from epoxy laminate and silicon.

4. The packaging device of claim 1, in which the mounting pad and the connecting pad each comprise at least one of copper, silver, gold, nickel and tungsten.

5. The packaging device of claim 1, in which the conductive interconnecting element comprises tungsten.

6. The packaging device of claim 1, additionally comprising:

a bonding pad located on the one of the major surfaces,

an additional conductive connecting pad located on the other of the major surfaces, and

an additional conductive interconnecting element extending through the substrate and electrically interconnecting the bonding pad and the additional connecting pad.

7. The packaging device of claim 6, in which the substrate comprises ceramic.

8. The packaging device of claim 6, in which the substrate comprises a material selected from epoxy laminate and silicon.

9. The packaging device of claim 6, in which the mounting pad, the bonding pad and the connecting pads each comprise at least one of copper, silver, gold, nickel and tungsten.

10. The packaging device of claim 6, in which the interconnecting element comprises tungsten.

11. A semiconductor device, comprising:

a substantially planar substrate having opposed major surfaces;

a conductive mounting pad located on one of the major surfaces;

a conductive connecting pad located on the other of the major surfaces;

a conductive interconnecting element extending through the substrate and electrically interconnecting the mounting pad and the connecting pad; and

a semiconductor die attached to the mounting pad.

12. The semiconductor device of claim 11, in which the substrate comprises ceramic.

13. The semiconductor device of claim 11, in which the substrate comprises a material selected from epoxy laminate and silicon.

14. The semiconductor device of claim 11, in which the mounting pad and the connecting pad each comprise at least one of copper, silver, gold, nickel and tungsten.

15. The semiconductor device of claim 11, in which the conductive interconnecting element comprises tungsten.

16. The semiconductor device of claim 11, additionally comprising:

a conductive bonding pad located on the one of the major surfaces;

an additional conductive connecting pad located on the other of the major surfaces;

an additional conductive interconnecting element extending through the substrate and electrically interconnecting the bonding pad and the additional connecting pad, and

a bonding wire extending between the semiconductor die and the bonding pad.

17. The semiconductor device of claim 16, additionally comprising an encapsulant encapsulating the semiconductor die and at least a portion of the major surface of the substrate on which the mounting pad is located.

18. The semiconductor device of claim 16, in which the substrate comprises a material selected from ceramic, epoxy laminate and silicon.

19. The semiconductor device of claim 16, in which the mounting pad, the bonding pad and the connecting pads each comprise at least one of copper, silver, gold, nickel and tungsten.

20. The semiconductor device of claim 16, in which the conductive interconnecting element comprises tungsten